

THE ATOM

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THE ATOM

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COVER:

A mountain stream in Los Alamos Canyon flows toward the reservoir in this photograph by Bill Jack Rodgers.

PEWEE

By Bill Richmond

A unique "testbed" nuclear reactor—the offshoot of earlier studies of LASL's Nuclear Propulsion division—is tentatively scheduled for a full power run this winter.

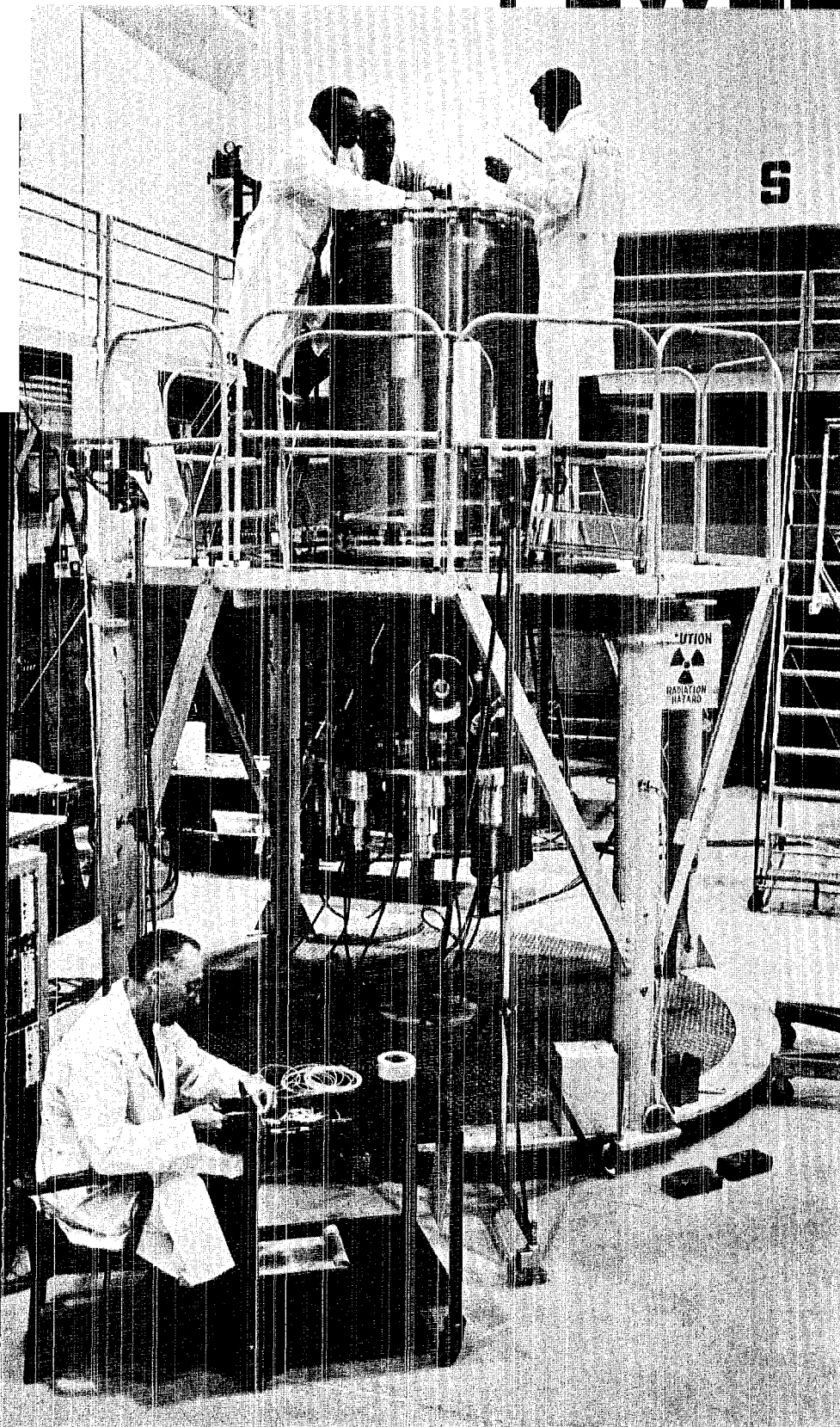
This reactor, one-tenth the core volume of LASL's Phoebe 2, has been designated "Pewee 1."

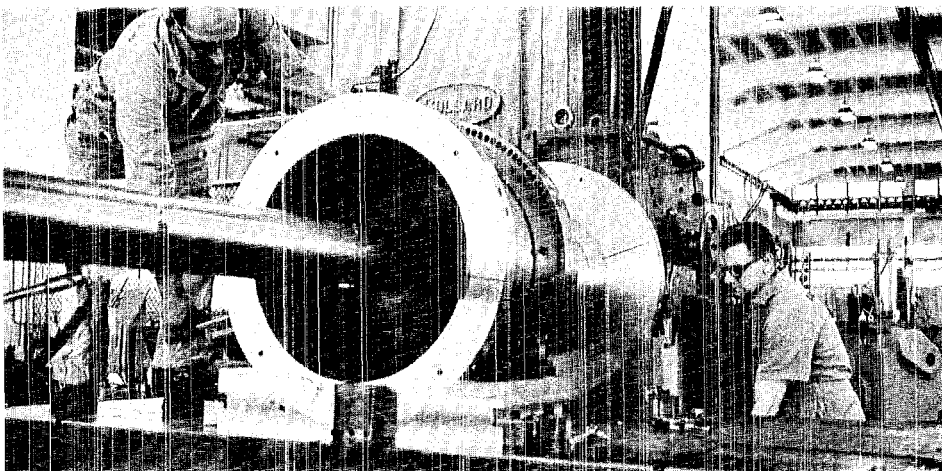
As Bill Kirk, N division coordinator for the Phoebe 2 and Pewee programs at LASL says, "Pewee is not intended to fly at all, but will serve as a testbed reactor for the Rover Program." (Project Rover is America's program to develop a nuclear propelled rocket capable of interplanetary travel.) In other words, Pewee, at a reduced cost and a quicker turnaround time, will be a great asset in developing core components for a flyable engine reactor.

The primary purpose of Pewee will be testing and developing fuel elements and supporting hardware for possible inclusion in NERVA

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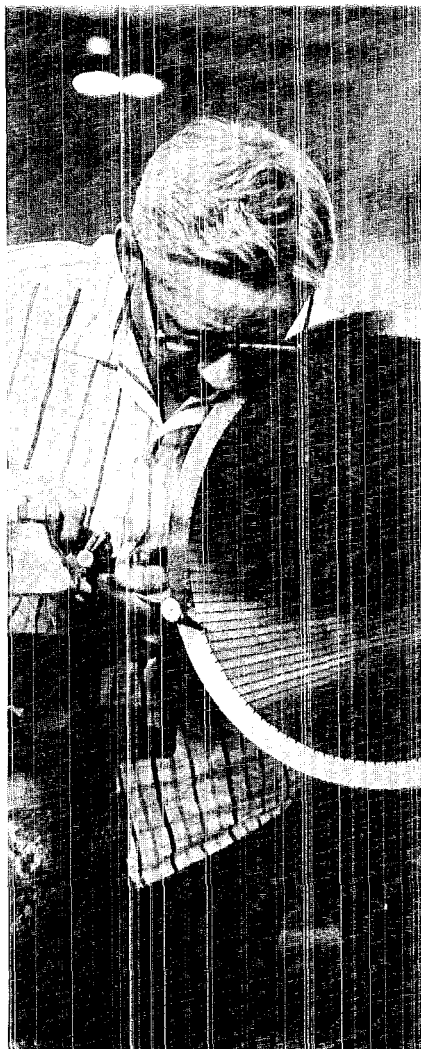
In a Kiva at Pajarito Site the Pewee reactor is readied for a low-power test run. At top: George Jarvis, left, John Orndoff, center, and Bennie Pena, all of N-2, insert flux wires into the reactor's core. At bottom: Avery Gage cuts spacers which hold aluminum tubes, into which the flux wires are inserted, to proper height. A specially-designed nozzle for the Pewee is not used in the Kiva tests.



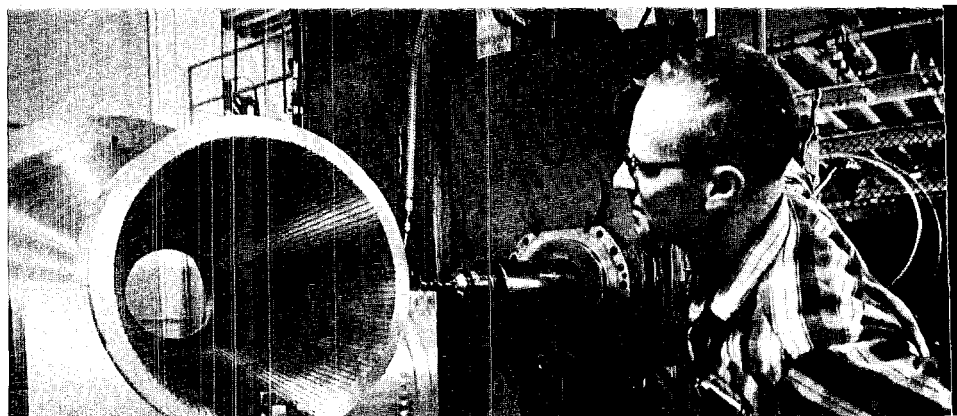


Grooves are cut inside the Pewee nozzle, using a horizontal boring mill with special tooling, by Shops department personnel Irwin George, left, and Paul Lewis. U-tubes, through which liquid hydrogen flows, are to be brazed into the grooves. The hydrogen is to act as a nozzle coolant before being heated in the reactor core and released through the nozzle in the form of gas.

Liquid hydrogen will enter the U-tubes through feeder holes in the nozzle. The holes were drilled on a horizontal boring mill by Paul Harris, SD-1.



Preparing the nozzle for its manifold is Vic Ferguson, SD-1.



Pewee

continued from preceding page

model reactors. (NERVA is the acronym of Nuclear Engine for Rocket Vehicle Applications.)

These tests will be conducted—as far as possible—in an environment simulating the reactor core environment to be encountered in the larger, flyable reactors. The object of Pewee is to provide the same temperatures, temperature profiles, propellant flow and operating pressure that will be encountered in the flyable reactors.

“Our (LASI’s) part of the Rover program has leaned heavily on materials development,” Kirk said, “and with Pewee we hope in the future to prove the usefulness of materials capable of higher temperatures and longer operating life.

Pewee will test today’s and tomorrow’s fuel elements.”

The Pewee reactor will be much smaller than Phoebus 2—about 38 inches in diameter instead of 80 inches, have a shorter nozzle and be reduced in height. The full-power test of Phoebus 2, scheduled for later this month, is expected to provide 5,000 megawatts of heat energy. As a contrast, Pewee is planned to operate at about 500 megawatts.

The fuel elements tested in Pewee will be the same size as those in the larger reactors, but there won’t be as many. In this manner, scientists will be able to set up the same operating conditions in the little reactor that they expect to encounter in the big ones. For ex-

ample, the Kiwi and Phoebus reactors are designed to heat liquid hydrogen from around 428° below zero fahrenheit to 4,000° above, turning it into a gas that escapes from the reactor pressure vessel through a specially-designed nozzle with force enough to push a space ship.

However, pumping liquid hydrogen through the reactor core and heating it about 4,500 degrees causes serious corrosion in the fuel element materials and limits the operating time of the reactor. But by exposing these fuel elements in Pewee, they can be evaluated for use in the NERVA engine.

"By including zirconium hydride as the moderator material in the reactor core, it is possible to build a smaller reactor," Kirk said. "The use of this moderator increases the probability that a neutron will be absorbed in the core instead of leaking out." Phoebus 2 has only the graphite surrounding the fuel element to serve as a moderator.

In other words, the use of zirconium hydride, dispersed along with support elements through the reactor, enhances the reactivity and makes it possible to reach criticality—and, indeed, power density comparable to that of the larger re-

actors—while using many fewer fuel elements.

Also, the distribution of support elements for the fuel elements has been changed in Pewee as compared to the Phoebus reactors. To make room for enough zirconium hydride moderator, the arrangement of fuel elements has been revised. In Pewee 1, there is a higher proportion of support elements than is used in Phoebus.

A big advantage in a small test reactor such as Pewee—over a larger Phoebus-type reactor—is that the fabricating time and cost of the fuel elements and reactor materials is lowered manifold. Because of this reduction, more Pewee-type reactors can be tested in a given length of time as compared to the larger Phoebus models. For instance, the period from the beginning of intensive design to test of Pewee is about 18 months. For Phoebus 2, the same period from design to test is about four years.

Another unique feature of Pewee is that the final reactor assembly will be done at LASL instead of at the Nuclear Rocket Development Station (NRDS) in Nevada.

All Kiwi and Phoebus reactors have been assembled in the LASL

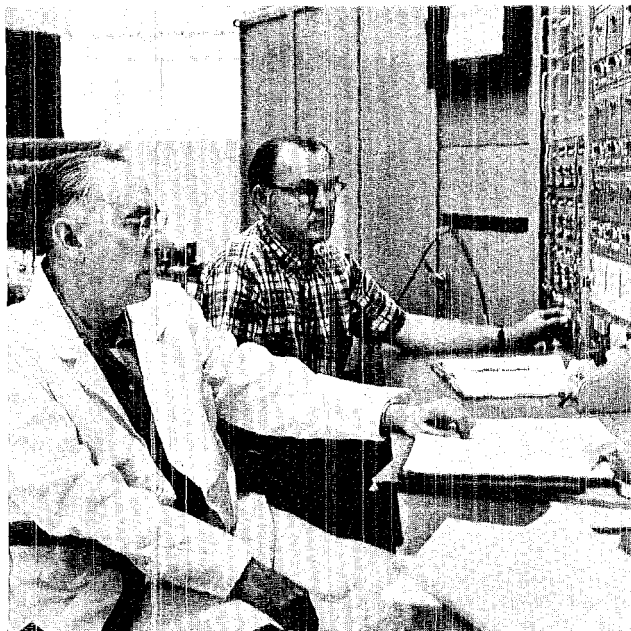
critical assemblies laboratory, checked out at very low power, then taken apart and shipped to NRDS where they were put together again in the R-MAD (Reactor-Maintenance, Assembly and Disassembly) building. This procedure, naturally, is time-consuming and provides more opportunity for errors and accidental damage.

Pewee, however, will be assembled in a Kiva at Pajarito Site and then transported by flatbed trailer to Nevada completely assembled. This will be the first time LASL has done this and a great number of safety precautions are necessary and will be followed in this move.

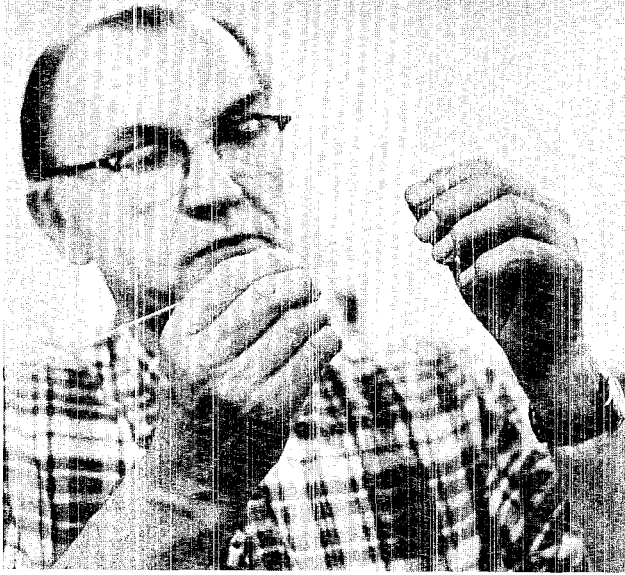
"The development program for the first in the Pewee series has been underway for almost a year," Kirk said, "and has progressed to a point where the Kiva checkout of the reactor is now underway." While in the Kiva the final measurements of the reactor's reactivity and detailed power distribution of the components will be made.

There will not be a cold flow test of Pewee, but the plans call for a number of experimental runs prior to the hot run sometime this winter. These experimental runs will involve the actual Pewee re-

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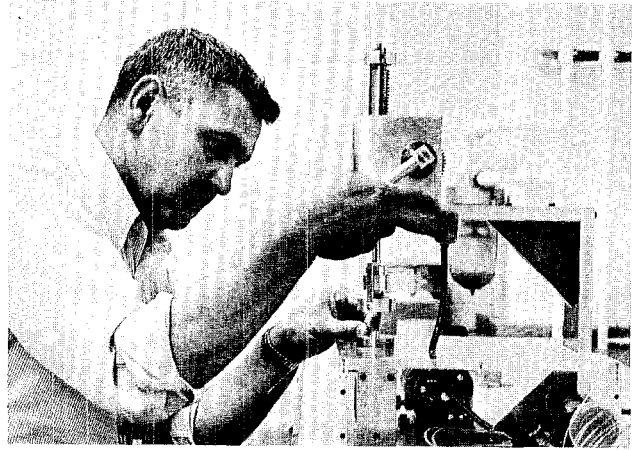


Manning the control panel during a low-power test run are Avery Gage and George Jarvis.

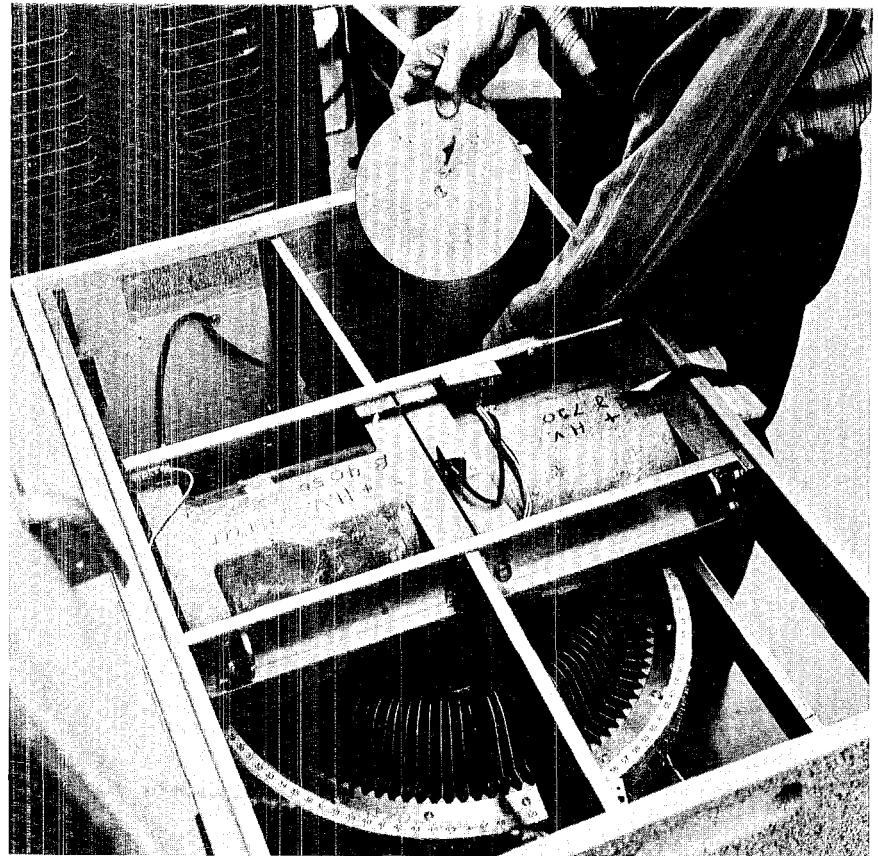


Separating a flux wire from one of the thin aluminum tubes is George Jarvis. The flux wire contains a small amount of uranium which reacts like the uranium in the fuel elements of the Pewee. Fissions in the wire are counted and can be related to those in the fuel elements to determine power distribution in the reactor core.

After being separated from the aluminum tubing, the flux wire is wound into a small coil by motor-driven equipment. Operator is Bennie Pena.



The coil of wire is centered in a metal disk by Roger White, N-2.



The disk is then placed in a slot of the circular rack of a modified juke box. A tape control selects which disk is to be "played" for counting of beta rays emitted from the flux wire.

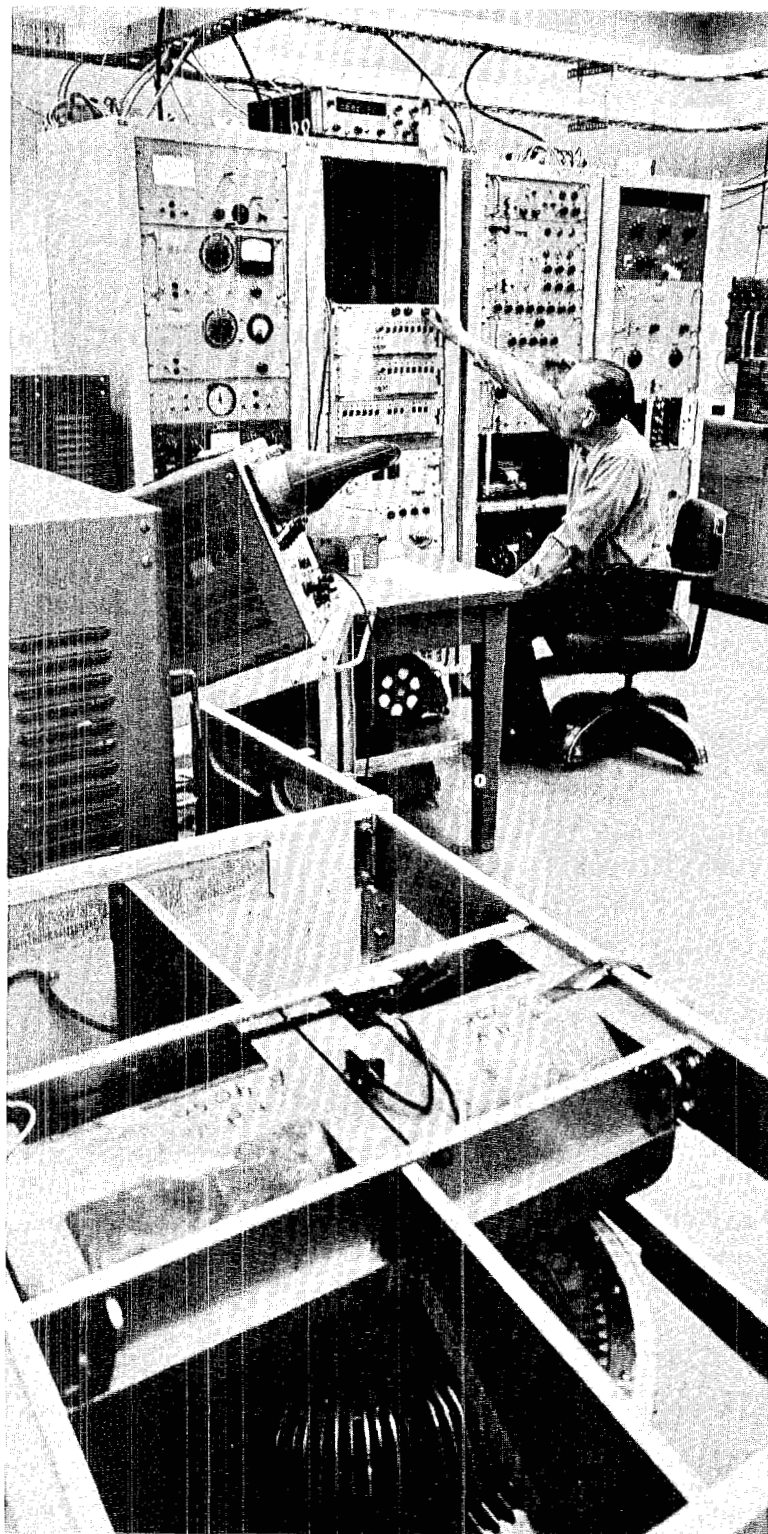
Pewee

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actor, to be tested in the hot run, and will not utilize a separate reactor such as has been done for a Phocbus cold flow.

The purpose of the Pewee 1 test this year is to prove out the basic design of the reactor; however, it will also incorporate some fuel element testing. Pewee 2, tentatively set for the summer of 1969, will be heavily committed to testing current fuel elements. "In later Pewee tests we hope to incorporate different materials for testing," Kirk said.

By using Pewee to test fuel elements and components for a flyable reactor engine, LASL will be able to work toward higher temperatures, longer life, and greater power density—power per unit volume. Even after NERVA is perfected, there will be work for Pewee to do in the way of improving fuel elements and working out new concepts for applying nuclear energy to space flight. ❀



Overall view of the instrumentation used in counting activity of the flux wires. In the foreground is the modified juke box. At left is the tape control and at top is the equipment which records the activity of the flux wires. Avery Gage is at the controls.

Call of the "Why

Will be Heard in Los Alamos This Month

By Bill Richmond

The call of the "Whywhy" bird will be heard in Los Alamos this month.

These calls go: "Why didn't I get more money?" or "Why isn't my merit raise higher?" or "Why didn't my husband get as big a raise as her husband?"

Unfortunately, most of these calls are directed against the Wage and Salary department of the Los Alamos Scientific Laboratory which reviews the merit raises in January for staff members and in July for all others. (The key word is reviews). Specific raise percentage for an individual employee is determined by the group and division offices prior to these dates.

Bill Rodgers, administrator for "Wage Ad"—as it is commonly called—said the AEC's agreement with the Laboratory is that LASL will pay the market average for all jobs from staff member to the very lowest. In other words, the average salaries at LASL are to be no more than the national market average.

"Our assignment in Wage Ad is to see that this policy is carried out and that we do not overpay an employee in one category nor underpay an employee in another category," Rodgers said. "We must also insure that an employee in one division is paid on an equitable basis with an employee in



Why" Bird

another division doing the identical or similar job."

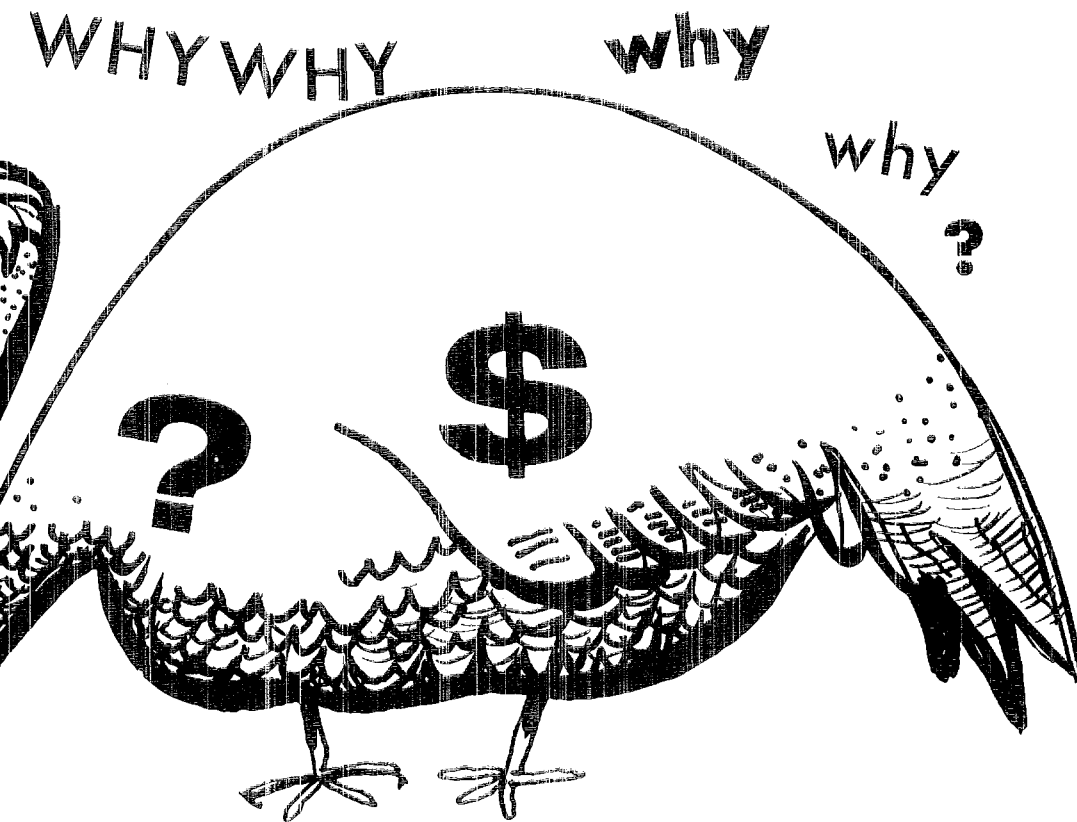
How is the market average determined? In a number of ways, but primarily through surveys.

Wage Ad conducts two national surveys of wages and salaries each year. These are the "Professional Scientific Salary Survey," and the "Technical Support Salary Survey." The first involves salaries paid to persons in the scientific and engineering fields while the second is in the supporting services category such as technicians, machinists, and draftsmen.

These surveys involve top research establishments in the country plus some of the larger industrial complexes. Also, surveys conducted by other organizations—and their findings—are considered by Wage Ad.

"Our survey is the most accepted one being conducted for engineering and scientific salaries," Rodgers noted. "We have built such a reputation that people ask to join the survey in order to get the results which they need for their salary administration programs. Also, other laboratories and

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... the "Whywhy" Bird ...

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organizations use our surveys for their own purposes; however, they must participate in the surveys and furnish us information in order to get the results."

Rodgers hastened to point out that these surveys are privileged information and are not for general distribution.

How extensive are the surveys? For 1967, the Professional Scientific Salary Survey encompassed 412 participating companies covering a total of 203,571 scientific and professional salaries. The Technical Support Salary Survey includes a number of companies with employees doing similar or identical jobs to those performed at LASL. When this latter survey was first started, Wage Ad visited all the companies contacted and discussed the various jobs as compared to the jobs at LASL. Now, each company is visited in alternate years.

"In those jobs for which we do not have any market information we have to look at what information we do have on similar jobs and use this as a measuring stick." There are certain jobs at LASL which are unique and are not duplicated elsewhere.

How is an individual's salary or wage increase determined?

"Each year we go to the AEC," Rodgers said, "and show them what the market average is, what our average pay scale is, and what percentage is apparently called for in the merit reviews. The University's contract with the AEC specifies there will be no raises without AEC approval so we must obtain authority to spend the funds for raises in the merit reviews."

After discussion between the AEC and the Laboratory, a lump-sum figure is arrived at for salary and wage hikes.

Then, a Wage Ad—Personnel department liaison committee meets to consider how to distribute the funds. This committee determines the allocation of funds to each division and department and the individual raises are then made by the division/department and group offices concerned and reviewed by Wage Ad.

Individual promotion or re-evaluation raises outside the merit reviews are requested by the employee's division leader to Wage Ad. Rodgers then assigns one of his employees to talk to the

individual or the group leader. This may result in a new evaluation, job description, and recommendation of Wage Ad which is reviewed by the liaison committee. The committee's decision is then reported to the division/department office.

In reclassification and raises for the graded series, the evaluator from Wage Ad looks for increased skills or responsibilities.

"For staff members there is no such thing as reclassification," Rodgers noted, "because there are no titles except Staff Member. Thus, for pay purposes, a staff member is simply a staff member and NOT a physicist, chemist, engineer, etc."

In regard to staff members, Rodgers said that division leaders are given certain guidelines and an allocation of funds for raises by the Laboratory. "We are concerned that the salary levels in one division for staff members are equitable to staff members in another division," Rodgers noted. The ranking of staff members within a division is a very important factor but the division leader is responsible for establishing it.

Other duties of Wage Ad include job descriptions for each employee. In some instances this is on an individual basis while others are on a job-grouping basis. For example, there is only one "Science Exhibit Hall Manager" which requires an individual job description while there are many electronics technicians. These can be grouped under one job description.

Also, Wage Ad reviews all job offers made by the Laboratory to insure they are in compliance with general laboratory standards. "The Laboratory doesn't normally want a new employee hired at the maximum of the pay range if it can be avoided," Rodgers pointed out, "because this can cause dissension in the ranks, reduce the funds available for the next merit review, and also lock the employee in with limited advancement opportunities. We feel those good employees who have been working here for years should be rewarded and part of their future increases should not go to a new hire."

How are starting salaries fixed?

Some job openings are filled by comparison of similar jobs on a nationwide basis—staff members, technicians, certain professional skills, etc. Starting salaries for others, such as secretaries, truck drivers, laborers, etc., are established on a local basis.

Wage Ad is accustomed to being a "whipping boy" in regard to pay hikes, but is not always the place complaints should be directed. ✱

Jerry Buchholz is shown, with pots of soil to which strontium-90 has been introduced, in the greenhouse at the TA-50 liquid waste disposal plant. It has been shown that plants take up the isotope in less amounts when the organic matter in the soil is increased.



LASL Scientists “Shadow” Radioactivity In Soil

Some interesting observations have been made in connection with a series of experiments at Los Alamos Scientific Laboratory to find out what happens to radioactive materials after they are introduced to crop-producing lands.

The series, now in its early stages, is not expected to be completed for many years, according to Eric Fowler, II-7 alternate group leader. Fowler and Chief Chemist Howard Adams and Chemist Jerry Buchholz

are conducting the experiments in the greenhouse at the TA-50 liquid waste disposal plant.

The scientists are presently testing the organic matter of radioactively contaminated soil samples to see whether a fraction of the organic matter binds a radioactive element such as strontium. “We think what we’re looking for is a colloid,” Fowler said. (A colloid is a particle less than .00008 of an inch in di-

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Howard Adams, right, and Jerry Buchholz harvest part of a crop in "Little Kansas." At far left is "Little South Dakota" and at right "Little New Mexico." "Rain" can fall from the watering systems shown above each of the three plots.



LASL Scientists . . .

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ameter, that has a tendency to enter physico-chemical reactions within soil).

Leading up to these tests have been several long-term experiments involving the introduction of radioactive isotopes to plant-hosting soils.

"In small-scale greenhouse experiments, we have been able to show that plants take up less strontium-90 when the organic matter is increased," Fowler said.

A similar response was shown by plants to strontium-85 when it was introduced to three unique soil samples in the greenhouse. They are 20-ton samples of farmland which were disassembled in their native states in South Dakota, Kansas and New Mexico in 1964. They were reassembled at Los Alamos so that the soil profiles remained in

the same order as found in the field. "We have simulated as near as possible, conditions as they were in the field," said Fowler. For example, "rain" can fall on each of the plots from an overhead watering system in amounts that approximate that normally received in each one's native location. The samples, he noted, are representative of the major soil classifications found throughout the United States.

The strontium-85 was uniformly distributed on one-half of each plot so that comparisons could be made between plants grown under "clean" and "spiked" conditions. Tests have been run periodically to see what amounts of the strontium isotope are taken up by plant life.

Traces of the isotope have been found in the plants, but in varying

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LASL Scientists . . .

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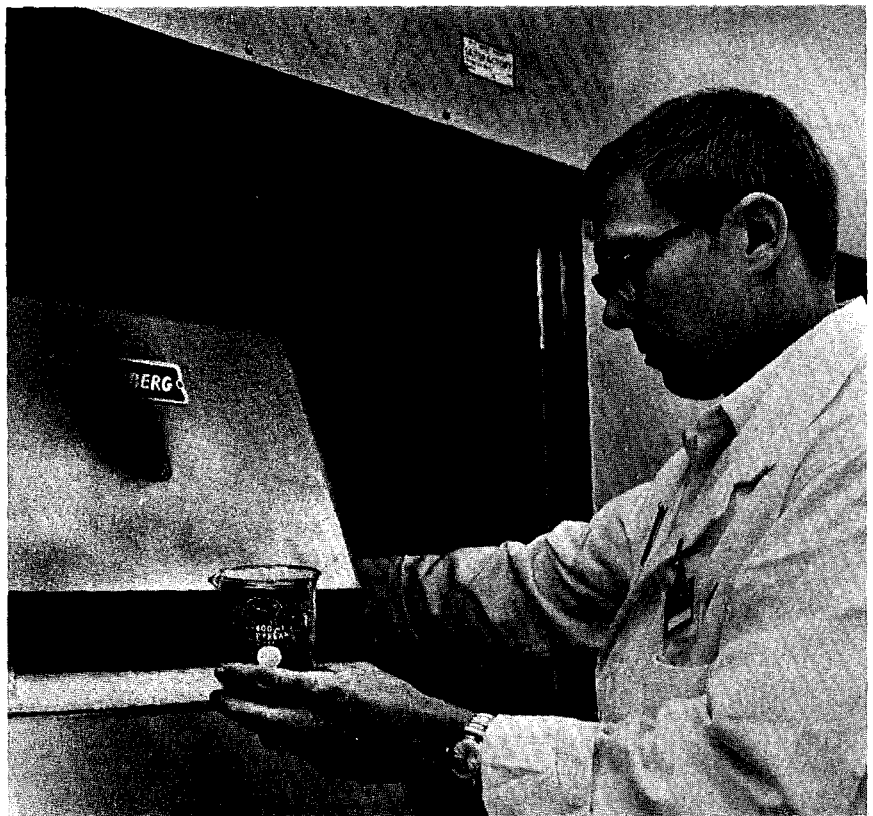
minute amounts. The largest amounts have been found in plants grown in "Little New Mexico." By comparison, "Little Kansas" and "Little South Dakota" have been found to take up 40 to 50 per cent less.

The difference coincides with the amount of organic matter contained in each plot. The New Mexico soil contains the least amount of organic matter. South Dakota and Kansas plots contain nearly like amounts, but in excess of that in the New Mexico soil.

To "count" amounts of the strontium isotopes taken up by plants, a part of the crop is "harvested" and converted to ash in a laboratory furnace. Strontium-85, a gamma emitter, is counted directly from the ash. Strontium-90, a beta emitter, is counted after the ash is dissolved in nitric acid and plated on stainless steel.

The bulk of the strontium has moved (translocated) less than an inch in two years. This is true even though it had the opportunity to move with the "rain" which has fallen and seeped into the soil.

The slow translocation of the strontium is similar to that of plu-

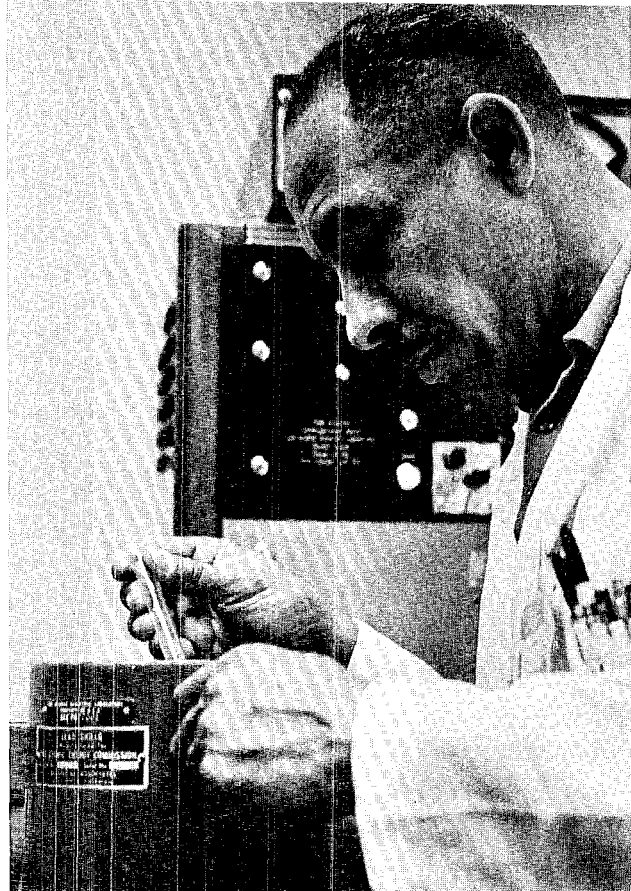


After part of a radioactive crop has been harvested, Jerry Buchholz places it in a laboratory oven where it is converted into ash.

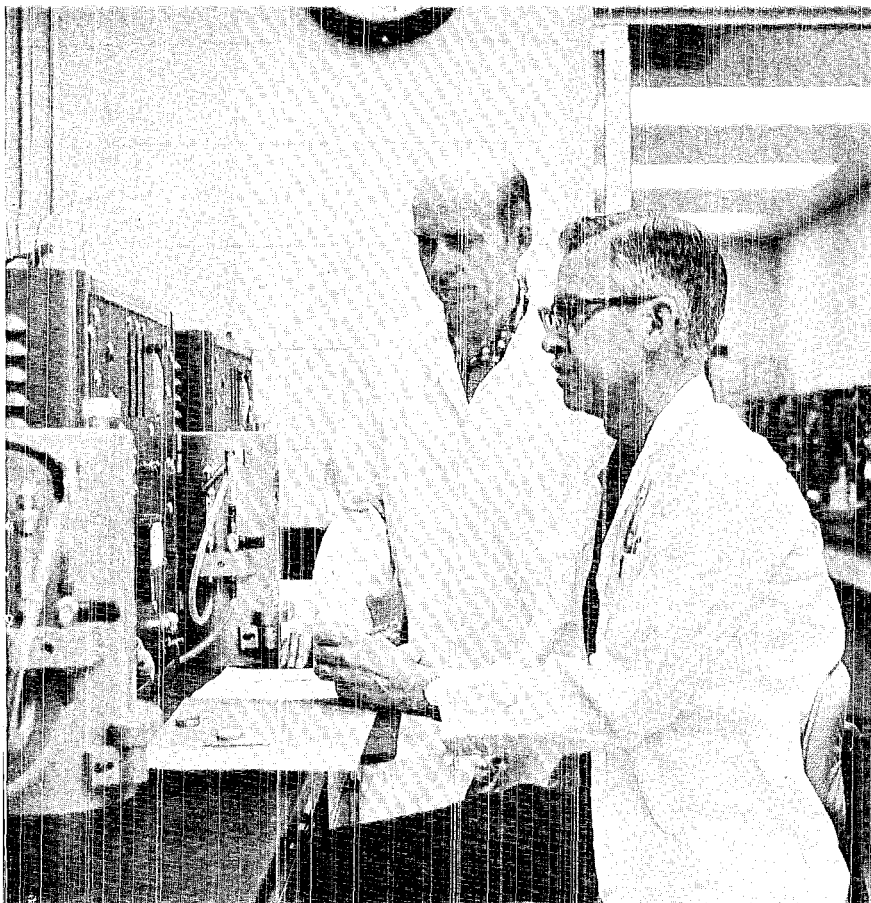


Now ash, Buchholz retrieves the crop sample from the oven.

Using laboratory equipment, H-7's George Johnson "counts" the ash to determine the amount of strontium-85 taken up by a plant.



Strontium-90, a beta emitter, is counted after the ash is dissolved in nitric acid and plated on stainless steel. Howard Adams is assisted by Laboratory Technician Jose G. Roybal, right.

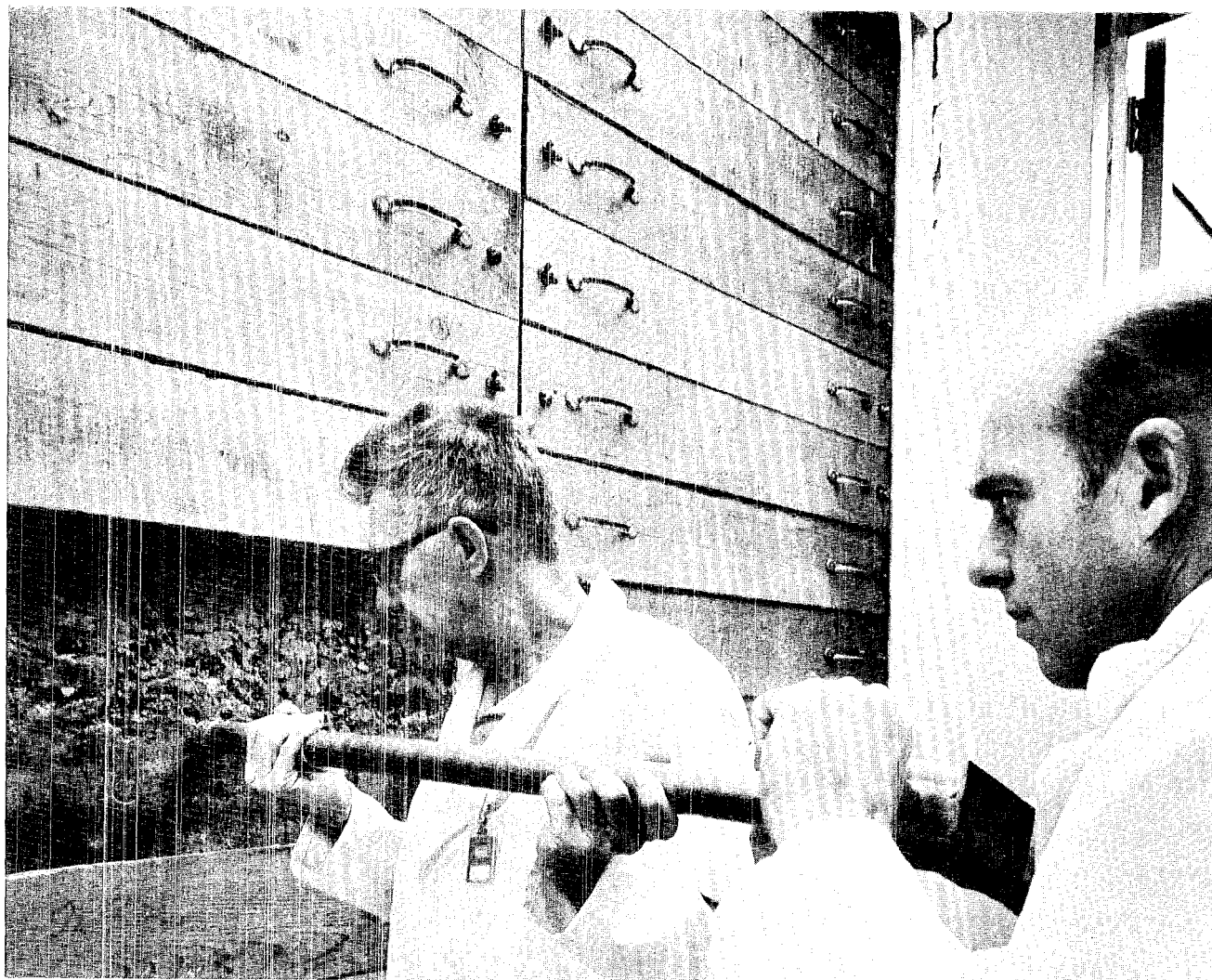


onium. Plutonium, in another experiment, was sorbed from liquid waste and tightly bound by tuff. "We attempted to leach the plutonium with the equivalent of 300 years of Los Alamos rainfall. Radiographs showed that it remained in the upper one-half inch of the tuff," Fowler said.

To facilitate detection of translocation in the large 4x8x9-foot South Dakota, Kansas and New Mexico plots, one of the retaining walls is made up of small boards, which can be removed individually by loosening a bolt on either end. This allows the scientists to take core samples at any level and, through analyses, determine whether there has been any translocation of a contaminant. It also simplifies injection of fertilizers and other materials into the samples for experimentation.

What would happen if radioactive plants such as these growing in the greenhouse were consumed by the public? Probably nothing. In the case of tomato plants, for example, grown in soil containing

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One of the retaining walls of the South Dakota, Kansas and New Mexico plots is made up of small boards, which can be removed individually. After removing two of them, Eric Fowler and Howard Adams take a core sample from "Little New Mexico."

LASL Scientists . . .

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plutonium at a level many times that which is now found, "It has been calculated that one person could consume a ton of tomatoes a day without harm from the plutonium," Fowler said.

The experiments, he emphasized, are to find out where the radioactive materials go, not what happens to the plants. The scientists want to know if atomic wastes eventually find their way into our water supply; into successive generations of

plant life; or whether they become dormant in the soil.

Present experiments will be followed by many more in the years ahead at Los Alamos Scientific Laboratory. They reflect the imagination of scientists who see the atom becoming more and more, a common partner in our everyday lives. As the spectrum of its use broadens, the information provided by these experiments will have ever-increasing value.

✍

Since mid-March, 50 men and women of Los Alamos have been participating in a physical fitness program known as "jogging."

Jogging is an exercise program of relaxed running and walking, designed to improve the level of physical fitness of men and women

of varying ages and physical conditions.

As an organized program, it is relatively new in the United States. Its introduction came after Bob Bowerman and his University of Oregon world record four-mile relay team returned from a tour of

New Zealand in 1962. Bowerman discovered, that to New Zealanders, jogging is almost a way of life and that the vitality of the "over 30" was particularly impressive. He recognized its potential, not only as a training vehicle for runners, but as a physical fitness program for the American citizenry as well.

He was joined by Dr. W. E. Harris, a cardiologist. Together they designed a 12-week program for men and women who do not exercise regularly and who may even lead sedentary lives.

In late December of 1967, Bowerman wrote to Roy Reider, II-3 group leader and chairman of the Los Alamos Olympic Committee. The coach noted that Bob Williams a graduate of the University in recreation and an Olympic aspirant in the steeplechase event, would be training in the Los Alamos area. Williams, Bowerman advised, was qualified to lead a program in jogging.

Reider and other members of the committee were enthusiastic about the possibility of having such a program available for residents of Los Alamos. Their enthusiasm was rewarded in early January when Williams wrote to Reider and confirmed his interest in leading such a program.

But, before a jogging program could be initiated, a sponsor had to be found. A search for one was immediately launched. It ended with officials of the Los Alamos Schools, who agreed to school sponsorship.

Soon thereafter, residents were invited to enroll in sessions to be held at Sullivan Field. Enrollment consisted of filling out a registration card and medical questionnaire. Dr. Paul Lee of the Los Alamos Medical Center, volunteered his time to screen the questionnaires. This was necessary to determine whether any of the enrollees had physical disabilities of such significance that would be detri-

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Jogging at Los Alamos

Early morning joggers cast long shadows on the track at Sullivan Field in Los Alamos.



mental to their well-being if they were to participate.

Finally, 28 women and 22 men began the program. They were joined later that month by another Olympic aspirant, Ken Moore, a graduate student, also of the University of Oregon. Moore offered assistance in the program and began high altitude training for the marathon event.

Although the local program terminates this month, many of its members, in their quest for physical fitness, will probably continue jogging on an individual basis. In fact, it has been emphasized

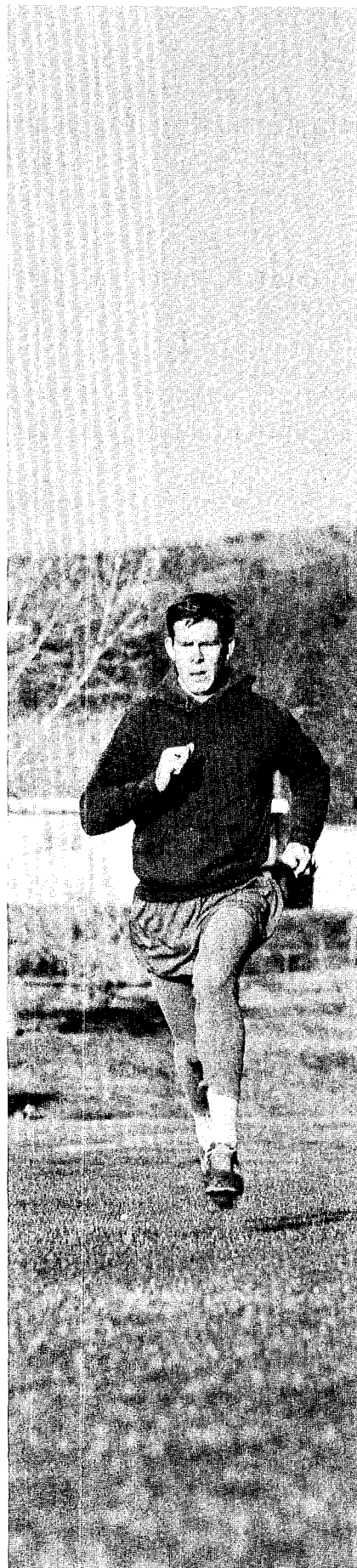
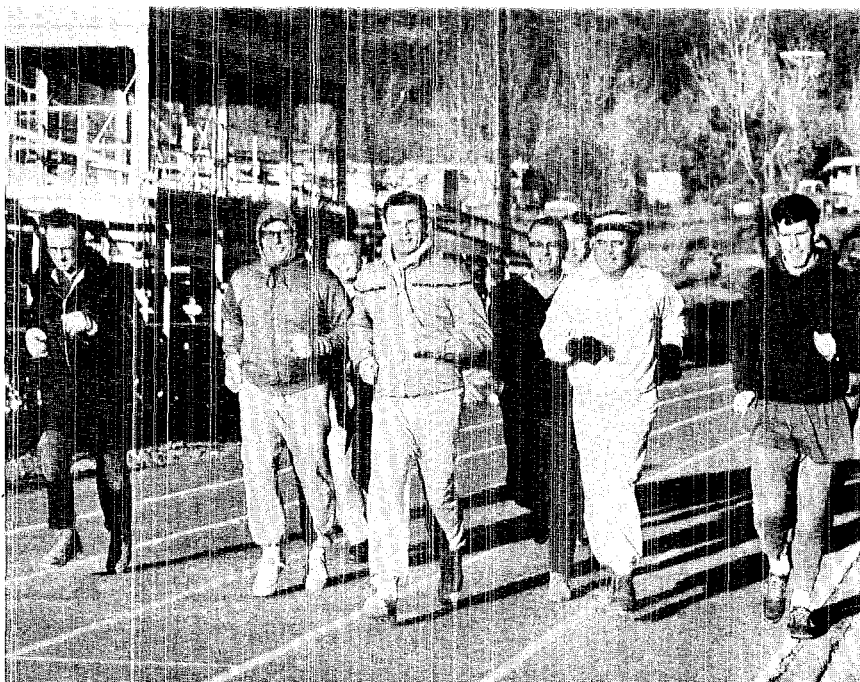
throughout, that the purposes of the organized session are only: to make the participant aware of individual needs and capacity; to learn the proper techniques of running; and to become familiar with proven methods of training. The level of fitness desired depends completely on the individual's application of what he has learned.

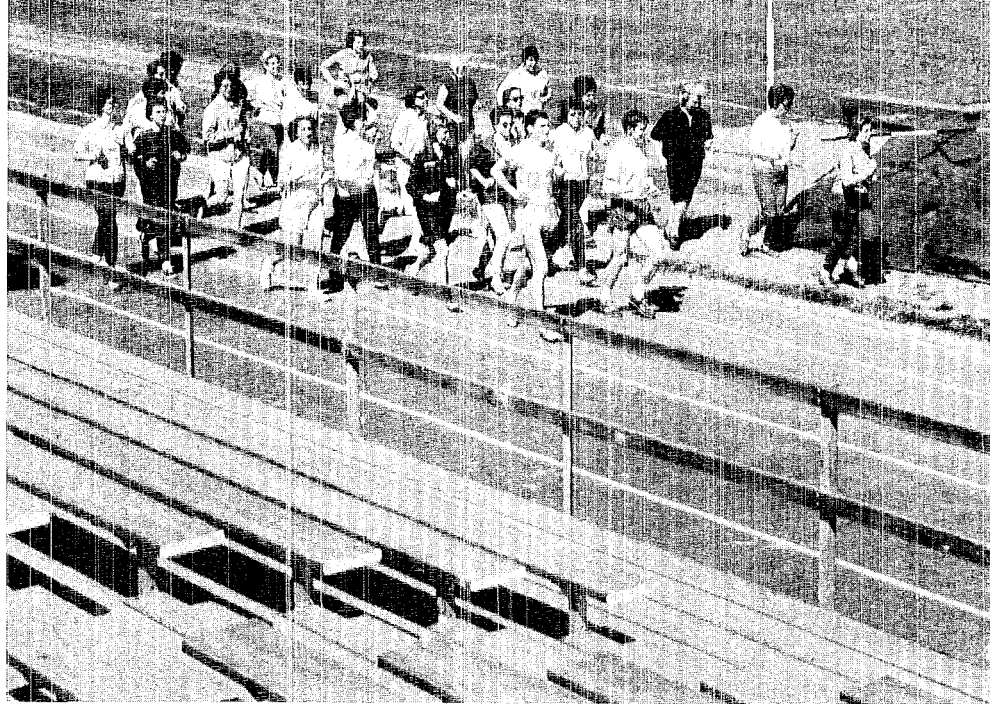
However, at the end of the program, there should be some beginning evidence of physical fitness in appearance—slimmer waistlines and hips—to provide incentive to continue jogging—jogging—jogging. . .

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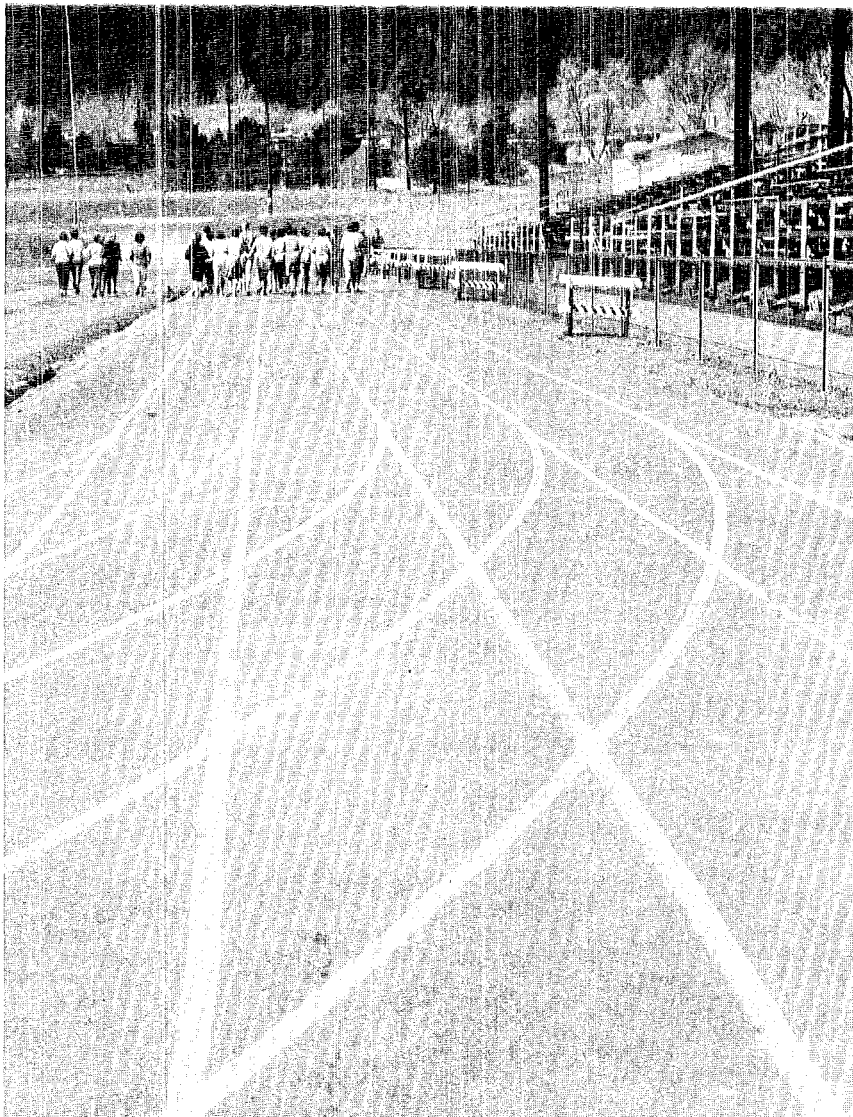
Leadership for the jogging program, sponsored by the Los Alamos Schools, is provided by Bob Williams, an Olympic aspirant who is in training here for the steeplechase event. Williams is a graduate of the University of Oregon in recreation. He assisted in jogging programs to train runners for the University track team under Bob Bowerman, who is largely credited with the founding of jogging as an organized physical fitness program in the United States.

A majority of the 22 men participating in the jogging program are employed by the Los Alamos Scientific Laboratory. Shown here, left to right, are Ken Cooper, N-3; Henry Filip, N-1; Tom Merson, N-3; Winston Dabney, AO-5; John Russell, K-4; John Weinbrecht, N-3; John Devine, AO-DO; and Bob Williams, program leader.





Leader Bob Williams and Ken Moore, both Olympic aspirants, have been participating in all three sessions of jogging, held each Monday, Wednesday and Friday. They are shown here, jogging with the women's group.



Taking a break is Melanie (Mrs. James) Fretwell.

From the straggler's view point, the women's jogging session would look something like this.

Nine LASL Employees Retire

Omar O. Gallagher, Eng-4 maintenance engineer, retired March 29 after more than 10 years service with LASL. Born in Ohio, Gallagher served with the U.S. Army Eighth Cavalry from 1931-34 at Fort Bliss, Texas. He worked at Ford Motor Co., Dearborn, Mich., for eight years, operated his own taxi service in El Paso for three years, and during World War II, sailed in the Merchant Marine, as a member of the engine room crew. Gallagher was a civilian engineer with the U.S. Navy, working in Michigan, and also at Buckley Field, Denver. He went to Santa Fe in 1954 as an engineer at St. Vincent's Hospital, and also worked at the Los Alamos Medical Center prior to joining LASL. He and his wife, Virginia, will continue to live in Santa Fe. Gallagher will be employed by the State of New Mexico as a maintenance engineer. The Gallaghers have two children: Patricia (Mrs. William Bridge) of Helena, Mont.; and Arthur of Memphis, Tenn. They have four grandchildren.

Blanche Pauline Pazdra, chemical plant operator in GMX-3, retired March 15. Mrs. Pazdra has been with GMX-3 since coming to LASL in March, 1951. She has returned to her native state of Texas where she will make her home.

Juanita M. Hidy, N-5 secretary, retired March 29. A LASL

employee since September, 1948, Mrs. Hidy is a native of Fort Smith, Ark. She plans to continue living in Los Alamos, as her husband, Harold, is an employee of Eng-3. They have one daughter, Brenda Kaye, a junior at the University of Texas in Austin.

Celedon A. Gonzales, fabrication technician in P-17, retired March 20. Born near Los Alamos at El Rancho, Gonzales was hired by LASL in April, 1953. After a short time, he left to work in Pasadena, Calif., but returned to New Mexico and was an employee at the State Penitentiary as a correctional officer for six years. He rejoined LASL in 1961 in D-8, and transferred to P division in 1963. He and his wife, Dolores, have seven children.

Raleigh E. Zellers, electrochemical technician in GMX-3, retired March 29. Born in Blue Springs, Nebr., Zellers grew up in Bristol, Colo. He has lived in Dixon, N.M., for the past 30 years. He joined LASL in February, 1951, as a warehouse clerk. He and his wife, Lydia, will continue living in Dixon where they have their own store. They have two sons, Eugene, an employee of the Albuquerque National Bank, and George, a student at the University of New Mexico.

Christobal J. Sanchez, GMX-3 truck driver, retired March 29. Sanchez was born in Ocate, N.

M., and has been a continual resident of the state. He joined LASL in February, 1949. Prior to that he worked for Zia Company in Los Alamos for three years. He and his wife, Estella, have eight daughters and four sons. They plan to continue residing in Santa Fe.

Apolinar M. Valdez, cafeteria attendant in Per-4, retired April 19. A life-long resident of this area, except for four years as a railroad employee in Hiawatha, Utah, Valdez was born in Velarde, N.M. He worked as a laborer for contractors in Los Alamos before joining LASL in July, 1961.

A husband-wife team has retired. **Hazel Mae Son**, administrative clerk in D-8, retired May 10. Her husband, **Lillard Frank Son**, machine operator in GMX-3, retired April 30. Mrs. Son was born in El Reno, Okla. She joined D-8 in 1951 and has been with that group since. Son was born in Otoka, Okla., and prior to coming to Los Alamos, was employed by the Lightning Torpedo Co. in Oklahoma City and Wichita Falls, Texas, as an oil-well shooter. He joined GMX-3 in 1950 and has been with that group since. The Sons plan to travel to Oklahoma and Texas and spend the summer at their cabin on the Conejos River in Colorado. They will maintain their home in Los Alamos.

short subjects

Film crews, representing Bavarian Education TV Network, West Germany; and RAI Corporation Italian Radio TV System, were at Los Alamos Scientific Laboratory during the first week of May.

Photographs taken by the West German unit will become a part of a television program entitled "A Look Into the Future of Nuclear Energy."

Footage taken by the Italians will be used in a series of five one-hour television programs called "The Future of the Atom," which will be broadcast over the entire Italian system.

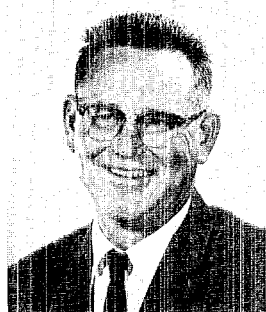


Capt. Nicholas Stillwell, USAF, a LASL military staff member, has been promoted to major. Major Stillwell, whose previous assignment was in the Wright-Patterson Systems Project Office, Dayton, Ohio, received his gold oak leaves from Harold Agnew, Weapons division leader, in an informal ceremony attended by a number of his associates in group W-4.



Dr. William E. Ogle, Test division leader at Los Alamos Scientific Laboratory, is the recipient of the University of Illinois' College of Engineering Alumni Honor Award for Distinguished Service in Engineering.

Dr. Ogle received the award in ceremonies at the University in Urbana. It is presented to approximately five alumni of the University of Illinois each year "who have distinguished themselves by outstanding leadership in planning and direction of engineering work, by fostering professional development of young engineers, or by their contributions to knowledge in the field of engineering."



George H. Pimbley, T-8, will spend four and one-half months working with the mathematics research group at the Battelle Institute Advanced Studies Center in Geneva, Switzerland.



Pimbley, with his family, left Los Alamos in mid-May for Geneva and will return during the first week in October. He will be on professional research and teaching leave status from Los Alamos Scientific Laboratory while in Switzerland.

Pimbley, was invited by the group for collaboration to effect a better understanding of nonlinear transformations and the structure of solutions of nonlinear integral and differential equations, and eigenvalue problems. He has been employed by LASL for 18 years and has been doing research in these areas since 1959.



Charles R. Canfield, Per-DO, has been appointed to the Scientific Advisory Committee of the New Mexico Selective Service System.

Canfield's appointment to the five-member committee is for one year. The committee's advisory function is concerned with selective service registrants who are engaged in occupation activities in various research and defense installations throughout New Mexico, both government and private.



Glen A. Graves, N-2, has been appointed to membership in the Professional Divisions Committee of the American Nuclear Society for a three-year term, expiring in June, 1971.

His term as chairman of the Aerospace Division will expire this month.

He will speak on the current status of the Rover Program at a joint meeting of the Society and the Canadian Nuclear Association in Toronto June 9-13.

The Technical Side

American Geophysical Union Meeting, Washington, D. C., April 8-11:

"Plasma Observations Across the Magnetopause" by S. J. Bame, J. R. Asbridge, and E. W. Hones, all P-4

Observations of ^{16}O and ^3He Ions in the Solar Wind" by S. J. Bame, P-4 A. J. Hundhausen, T-12, J. R. Asbridge and I. B. Strong, both P-4

"Flow of Protons Transverse to the Solar Wind near the Bow

Shock" by J. R. Asbridge, S. J. Bame, H. E. Felthausen, and I. B. Strong, all P-4

"The Solar Wind and the Equatorial Outer Belt Trapped Electrons during Geomagnetic Storms" by L. J. Lanzerotti, Bell Telephone Laboratory, Murrayhill, N.J. and I. B. Strong, P-4

"Solar Energetic-Particle Events in the Period May 21-June 10, 1967" by S. Singer, M. D. Mont-

gomery, and J. P. Conner, all P-4

"Penetration of Solar Protons into the Magnetosphere" by M. D. Montgomery, S. Singer, and J. P. Conner, all P-4

"Characteristics of the Electron Component of the Solar Wind" by M. D. Montgomery, S. J. Bame, both P-4 and A. J. Hundhausen, T-12

"Non-Symmetric Plasma Flow in the Earth's Magnetosheath" by A. J. Hundhausen, T-12, H. E. Gilbert and J. R. Asbridge, both P-4

"Observed Magnetosheath Flow Properties and Gas Dynamic Theory" by H. E. Gilbert, P-4, A. J. Hundhausen, T-12, and I. B. Strong, P-4

"The Propagation of Transient

obituaries

Cecelia A. Hayden, accounting clerk in Group AO-5, died at her home in Los Alamos April 23. She was born in Grinnell, Kan. and lived in Denver prior to coming to Los Alamos. Mrs. Hayden joined LASL in June, 1955. She is survived by two sons, James of White Rock, and Lawrence of Tucson, Ariz.; three brothers and four sisters. Following services in Los Alamos, burial was in Denver April 27.

Armand P. Kelly, J-1 group leader, died in a Socorro, N.M. hospital April 23 after suffering a heart attack while on vacation. Kelly had been with LASL since November, 1944, when he joined a personnel department group known as A-2. After serving in various J division groups, he transferred to Group J-1 in July, 1951, and had been with that group since. Born in Salt Lake City, Utah, Kelly received the B.A. and M.A. degrees in eco-

nomics from Cornell University, Ithaca, N.Y. In addition to his Laboratory duties, he was active in community affairs. He was a founder and chairman of the board of directors of the Los Alamos Building and Loan Association at the time of his death. He is survived by his wife, Bernice (Bunny), an employe of T division, and a son, James, a graduate student at the University of Wisconsin. Memorial ser-

vices were held in Santa Fe April 27. Burial was in Guaje Pines Cemetery in Los Alamos.

Earl A. Long, a cryogenist at LASL during World War II, died May 15 at the University of Alabama. Long came to Los Alamos in the very early days of "Project Y" from Columbia University. He left in early 1946 to accept employment at the University of Chicago.

new hires

Engineering Department

Rebecca L. Pettit, Los Alamos, Eng-3
Joan I. Trujillo, Cordova, N.M., Eng-4

GMX Division

Shelia R. Michael, Los Alamos, GMX-1
Earl L. Branham, Byesville, Ohio, GMX-3

J Division

Francis G. West, Santa Fe, J-6
William L. King, Albuquerque, J-8
George A. Ortega, Panama Canal Zone, J-DO
Nijole M. Saponara, Los Alamos, J-11
Janet E. Bendt, Los Alamos, J-15

N Division

Donald L. Zickert, Jackass Flats, Nev., N-1
Thomas F. Stratton, Columbus, Ohio, N-5

Personnel Department

Lynda E. Shadel, Los Alamos, Per-1
Mary L. Bonner, Los Alamos, Per-1

Shops Department

Walter Schuster, Bedford Heights, Ohio, SD-1

W Division

Phillip A. Secker, Jr., Pittsburgh, Pa., W-1
Valeria A. Hackman, Los Alamos, W-1
Richard N. Husted, Las Vegas, Nev., W-1
Arnold A. Robba, Cambridge, Mass., W-8

continued from preceding page

Disturbances in the Solar Wind" by A. J. Hundhausen, T-12 and R. A. Gentry, T-3

"The Earth's Bow Shock and Magnetopause as Observed by Velas 3A and 3B over a One Year Period" by D. N. Anderson, G. R. Heckman and M. Dryer, all Environmental Science Services Administration Research Laboratory, Boulder, Colo. and J. R. Asbridge, P-4

"Satellite Observations of Scattered Hydrogen Lyman- α Radiation at 17R₁₀" by J. C. Fuller, W. H. Chambers, P. E. Fehlau, and W. E. Kunz, all W-7

Conference on Therapeutic Aspects of Negative Pions, University of California, Berkeley, Calif., April 15:

"Monoenergetic Neutron-Induced Division Delay" by D. F. Petersen and R. A. Walters, both H-4 (Invited talk)

Meeting of the American Ceramic Society, Chicago, Ill., April 20-25:

"²³⁸PuO₂ Pyrolytic Coated Particles" by W. J. McCreary, CMB-8 and W. C. Pritchard, CMB-11

Institute of Electrical and Electronic Engineers Regional III Conference, New Orleans, La., April 22-24:

"Mortar Location by Short Baseline Acoustical Detection" by F.M. Ingols, Mississippi State University, State College, Miss., R. W. Freyman and A. R. Koelle, both P-1

American Physical Society Meeting, Washington, D.C., April 22-25:

"Shock Compression of Solid Argon" by J. Skalyo, R. D. Dick and R. H. Warnes, all GMX-4

"Shock Compression of Liquid Benzene, Carbon Disulfide, Carbon Tetrachloride, and Nitrogen" by R. D. Dick, GMX-4

"Shock Wave Compressions of Anthracene, Phenanthrene, and Pyrene" by R. H. Warnes, GMX-4

"Numerical Simulation of the Compression of a High β Plasma" by C. R. Shonk, T-2 and R. L. Morse, P-18

"Evolution of the Design of the LASL Lamb-Shift Polarized Ion

Source" by J. I. McKibben and G. P. Lawrence, both P-9 and G. G. Ohlsen, P-DOR

"Beam Measurement in the LASL Lamb-Shift Polarized Ion Source" by G. P. Lawrence and J. I. McKibben, both P-9 and G. G. Ohlsen, P-DOR

"Improved Spin Filter and Solenoid Design for the LASL Lamb-Shift Polarized Ion Source" by G. G. Ohlsen, and J. A. Jackson, Jr., both P-DOR and J. I. McKibben and G. P. Lawrence, both P-9

"Two Particle-One Hole States Excited in the ²⁰⁷Pb(t, p) ²⁰⁹Pb Reaction" by E. R. Flynn, P-10, G. J. Igo and P. D. Barnes, both P-DOR and D. Kovar, Yale University, New Haven, Conn.

"Stability of a Rotating Theta-Pinch Plasma" by J. A. Palsedge, P-18

"Ground and Excited States of ²²⁷F" by R. H. Stokes and P. G. Young, Jr. both P-12

"A Search for States in the 3n and T Systems" by P. G. Young and R. H. Stokes, both P-12 and G. G. Ohlsen, P-DOR

"Decay of ¹⁶⁵Dy and ^{165m}Dy" by M. E. Bunker, G. J. Berzins, and J. W. Starnes, all P-2

"Space-Based Detection of Radiations from Nuclear Detonations and Other Sources" by R. F. Taschek, P-DO (Invited talk)

"An Exploding Foil Driven Switch for Short-Circuiting a Theta-Pinch Coil" by V. A. Finlayson, P-15

"Dynamic Stabilization of the m=1 Mode on a Bumpy Theta-Pinch Plasma Column" by F. L. Ribe, P-15 and W. B. Riesenfeld, P-18

Workshop on Cell Division, New York University Medical Center, New York City, April 23-24:

"Energy Requirements for Mitosis in Chinese Hamster Cells" by R. A. Tobey, H-4

Seminar at National Research Council, Division of Pure Physics, Ottawa, Canada, April 29; and at the University of Illinois, Urbana, Ill., April 25-26:

"Properties of Localized Magnetic Impurity States in Metals" by W. A. Steyert, Jr., CMF-9

American Association for the Advancement of Science, Southwestern and Rocky Mountain Division, 44th Annual Meeting, El Paso, Texas, April 28-May 1:

"Enthalpy of Formation of Nephelium Dioxide" by C. E. Holley, Jr. and E. J. Huber, Jr., both CMF-2

Symposium on Dose-Rate in Mammalian Radiation Biology, Oak Ridge, Tenn., April 29-30:

"Exposure of Sub-human Primates to Low Dose Rate Gamma Irradiation" Part I: "Behavior Studies of Rhesus Monkeys during Exposure to Gamma Radiation" by J. F. Spalding and L. M. Holland, both H-4; Part II: "Hematological Response of Rhesus Monkeys and Following Exposure to Gamma Irradiation" by L. M. Holland and J. F. Spalding, both H-4

Presentation at the American Foundrymen's Society Casting Congress, Cleveland, Ohio, April 29-May 3:

"Unusual Problems Encountered in Casting High Density-High Purity Plutonium" by D. R. Harbur, J. W. Anderson, and W. J. Maraman, all CMB-11

Presentation at Seminars University of Pennsylvania, Philadelphia, Pa., Jan. 22-23; National Magnet Laboratory, Cambridge, Mass., Jan. 24; McGill University, Montreal, Quebec, Canada, Jan. 26; Bell Laboratories, Murray Hill, N.J., Jan. 23; and New Mexico State University, University Park, N.M., Mar. 21:

"Properties of Localized Magnetic Impurity States in Metals" by M. D. Daybell, CMF-9

Informal meeting on the therapeutic properties of negative pions, Lawrence Radiation Laboratory, Berkeley, Calif., April 15:

"Status of the Los Alamos Meson Physics Facility" by L. Rosen, MP-DO

North Atlantic Treaty Organization Study Institute on Plasma Waves in Space and in the Laboratory, Noros, Norway, April 17-26:

"Transmission and Emission of Radiation by a Magnetized Laboratory Plasma" by H. Dreicer, P-13
continued on next page

the technical side . . .

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Meeting of the USAEC Transplutonium Program Committee, Washington, D.C., April 18:

"Nuclear Safeguards Applications of ^{252}Cf Spontaneous Fission Neutron Sources" by G. R. Keepin, N-6

Lecture—Toward Century 21—Selected Social and Technological Aspects, Stanford University, Stanford, Calif., April 18:

"Energy Resources with Emphasis on the Future of the Light Elements" by J. L. Tuck, P-D0

Colloquium at the University of Maryland, College Park, Md., April 18:

"Numerical Simulation of the Compression of a High β Plasma" by C. R. Shonk, J-10 and R. L. Morse, P-18

Presentation at the University of Colorado, Nuclear Engineering Class, Boulder, Colo., April 19:

"Nuclear Power Economics" by J. M. Williams, K-2

Department of Biology Seminar, Brigham Young University, Provo, Utah, April 22:

"Some Aspects of Bacterial Genetic Transformation" by B. J. Barnhart, H-4

Presentation at the University of Colorado, Nuclear Engineering Class, Boulder, Colo., April 22:

"UHTREX" by B. M. Carmichael, K-1

Meeting of the American Physical Society, Washington, D.C., April 22-25:

"Two Dimensional Numerical Simulation of Cylindrically Symmetric High β Plasmas" by R. L. Morse, P-18 (Invited talk)

Presentation at the Mathematics Research Center, University of Wisconsin, Madison, Wisc., April 23:

" $O(h^{2n-2})$ bounds on some Spline Interpolation Errors" by B. K. Swartz, T-1

Meeting of the Albuquerque Branch of the New Mexico Section of the American Society of Civil Engineers, Albuquerque, April 24:

"Los Alamos Meson Physics Facility" by P. D. Edwards, MP-5

Meeting of the Department of Biological Sciences, Purdue University, Lafayette, Ind., April 29:

"Complex Carbohydrates of Mammalian Cells" by P. M. Kraemer, H-4

Symposium on Dose-Rate in Mammalian Radiation Biology, Oak Ridge, Tenn., April 29-30:

"Exposure of Subhuman Primates to Low Dose-Rate Gamma Irradiation" by J. F. Spalding, H-4, D. N. Farrer, Holloman Air Force Base, Alamogordo, N.M., L. M. Holland, H-4 and R. G. Braun, Holloman Air Force Base, Alamogordo, N.M.

Twenty-sixth High Temperature Fuels Committee Meeting, Combustion Engineering, Inc., Windsor, Conn., April 30-May 2:

"Summary of Recent Compatibility Tests on (U,Pu)C Fuel" by R. H. Perkins, K-2

Second International Conference on Vacuum Ultraviolet Physics—Interaction with Solids, Gatlinburg, Tenn., May 1-3:

"Broad Band Photoelectric Spectrometer for the Extreme Ultraviolet" by W. H. Chambers, J. C. Fuller and W. E. Kunz, all W-7

Meeting of the Mid-America Chapter of the Health Physics Society, Lawrence, Kansas, May 3:

"Some Health Physics Aspects of Nuclear Weapons Incidents" by W. H. Langham, H-4 (Invited talk)

Annual Meeting of the American Society for Microbiology, Detroit, Mich., May 5-9:

"Radiosensitive and Radioresistant Mutants of Hemophilus influenzae" by B. J. Barnhart and S. H. Cox, both H-4

Colloquium, Department of Physics and Astronomy, University of Kansas, Lawrence, Kans., May 6:

"Equilibrium and Stability of a Toroidal Thermonuclear Plasma Column" by W. B. Riesenfeld, P-18

Annual Meeting on Theoretical Aspects of Controlled Thermonuclear Fusion, Berkeley Laboratory, May 6-7:

"Numerical Simulation of Electrostatic Instabilities in Two-Beam Plasmas" by C. W. Nielson and R. L. Morse, P-18

"Two Dimensional Numerical Simulation of Cylindrically Symmetric High β Plasmas" by R. L. Morse, P-18, D. O. Dickman, T-1 and C. W. Nielson, P-18

Presentation at 2nd European Symposium on Powder Metallurgy, Stuttgart, Germany, May 6-10:

"Characterization of Commercial Refractory Metal and Metal Carbide Powders" by R. E. Riley, CMB-6

Atomic Energy Commission Corrosion Symposium, Battelle Memorial Institute, Columbus, Ohio, May 6-8:

"An Analysis of the Na_2O Plugging Indicator" by C. C. McPheeters and J. C. Biery, both K-2

"Computer Simulation of a Na_2O Cold Trap" by J. C. Biery, K-2, B. C. Goplen, K-3 and C. C. McPheeters, K-2

"The Kinetics of Sodium System Cold Traps" by C. C. McPheeters, K-2

"Compatibility of Sodium-Bonded, Single-Phase Uranium-Plutonium Carbide with Potential Cladding Alloys" by F. B. Litton and J. C. Clifford, both K-2

Second International Cryogenics Engineering Conference, Brighton, England, May 7-10:

"The Influence of Accidents in the Continuing Development of Cryogenic Procedures" by Roy Reider, H-3

"Flowrate Limits for Cooling Stainless Steel Pipelines with Liquid Hydrogen" by J. K. Novak, CMF-9 (presented in absentia)

Governor's Safety Conference, Albuquerque, May 8:

"Status of the Boiler and Pressure Vessel Code for New Mexico" by C. A. Burch, H-3

"Industrial Hygiene, What Is It" by H. F. Schulte, H-5

Committee on Space Research (COSPAR) Symposium on Biological Effects on Radiation in Space, Tokyo, Japan, May 10:

"Studies of the Effects of Physiologically Damaging Doses of Radiation on the Performance Level of Trained Primates" by J. F. Spalding, H-4, D. N. Farrer, Holloman Air Force Base, Alamogordo, N.M., and W. H. Langham, H-4 (presented by W. H. Langham)

Seventh National Meeting of the Society for Applied Spectroscopy, Chicago, Ill., May 12-17:

"X-Ray Fluorescence Spectrometric Determination of Rare Earths in Plutonium" by E. A. Hakkila, R. G. Hurley, G. R. Waterbury, all CMB-1

"Low-Frequency Raman Spectra of Liquid Ammonia and Aqueous Solutions of Ammonia" by P. D. Waldstein and L. A. Blatz, both CMF-2

Presentation at the American Industrial Hygiene Association in St. Louis, Mo., May 13-17:

"Comparison of H.E.P.A. Filter Efficiencies Using Thermal and Air Jet Generated Dioctyl-Phthalate (D. O. P.)" by H. J. Ettinger, J. D. DeField, D. A. Bovis and R. N. Mitchell, all H-5

American Industrial Hygiene Association Annual Meeting, St. Louis, Mo., May 13-17:

"Surface Contamination Control at the Los Alamos Chemical and Metallurgical Building" by J. W. Enders, H-1

Joint Meeting of Rio Grande and Phoenix Chapters of Association for Computing Machinery, Phoenix, Ariz., May 14:

"An Interpreter for Computer Control" by R. F. Thomas, Jr., T-5

Institute of Electrical and Electronic Engineers Region Six Conference, Portland, Ore., May 20-22:

"Energy Sources of the Future with Emphasis on the Light Elements" by J. L. Tuck, P-DO

Proton Linear Accelerator Conference, Brookhaven National Laboratory, Upton, N.Y., May 20-24:

"Mechanical Design of the LASL Linac" by H. G. Worstell, MP-3

"A Real-Time Sampling Beam Position Monitor" by J. M. Potter, MP-3

"Design and Initial Performance of a 20 MeV High Current Side Coupled Cavity Electron Accelerator" by E. A. Knapp and W. J. Schlaer, both MP-3

"Field Perturbations in the Post-coupled Drift Tube Linac" by E. J. Schneider and D. A. Swenson, both MP-3

"Temperature Control for Maintaining Resonance of Linac Tanks" by G. R. Swain, MP-3, R. A. Gore, MP-1 and R. A. Jameson, MP-2

"Los Alamos Meson Physics Facility Control Philosophy" by R. A. Gore, MP-1

"805-MHz Power Sources for the LAMPF Accelerator" by D. C. Hagerman, MP-2

"Automatic Control of RF Amplifier Systems" by R. A. Jameson, MP-2

"Fault Protection Circuitry for the LASL 201.25-MHz Power Amplifiers" by J. D. Doss, MP-2

"High Duty Factor Floating Deck Modulator for Los Alamos Meson Physics Facility" by T. G. Van Vessel, MP-2

"LAMPF 200-MHz Power Sources" by J. R. Faulkner and T. J. Boyd, Jr., both MP-2

"Programs for Computer Control of EPA" by M. D. J. MacRoberts, T-5, Sally D. Ohlsen, MP-1, C. M. Plopper, MP-1, D. D. Simmonds, T-5 and R. F. Thomas, Jr., T-5

"Linear Accelerator for Unstable Particles" by D. E. Nagle, MP-4

"The Beam Transport Design for the LAMPF Injector" by P. W. Allison and R. R. Stevens, Jr., both MP-4

"The LASL High Duty Factor Ion Source" by C. R. Emigh and D. W. Mueller, both MP-4

"The Double-Drift Buncher" by C. R. Emigh, MP-4

International Atomic Energy Agency Symposium on Neutron Inelastic Scattering, Copenhagen, Denmark, May 20-24:

"Lattice Dynamics of Gallium Phosphide" by J. L. Yarnell, J. L. Warren, R. G. Wenzel, all P-2 and P. Dean, Bell Telephone Laboratory, Murray Hill, N.J.

Inter-American Conference on Materials Technology, San Antonio, Texas, May 20-24:

"The Role of Nondestructive Testing in Materials Technology and Engineering" by G. H. Tenney, Dir. Off. (Invited talk)

Tenth Modulator Symposium, New York, N.Y., May 21-22:

"80-kV Klystron 'Blocking-Oscillator' Modulator" by J. D. Doss, R. L. Cady, D. C. Hagerman, and T. F. Turner, all MP-2

Fachverband für Strahlenschutz, Affiliate Society of the International Radiation Protection Association, Interlaken, Switzerland, May 25-June 1:

"Soils and Plants as Indicators of the Effectiveness of a Gross Determination Procedure" by E. B. Fowler, J. R. Buchholz, C. W. Christenson, W. H. Adams, all H-7 and Conchita A. Ramis, Division de Medicina y Protection, Junta de Energia Nuclear, Madrid, Spain

International Conference on Thermionic Electrical Power Generation, Stresa, Italy, May 27-31:

"Thermionic Electric Propulsion System Characteristics and Capabilities" by W. A. Ranken and E. W. Salmi, both N-5

"Retention of Fission Gases in the UO₂ Phase of MoUO₂ Cermets Irradiated at High Temperatures" by W. A. Ranken, M. C. Chaney and A. J. Patrick, all N-5

"Advances in Heat Pipe Technology" by G. M. Grover, J. E. Kemme and E. S. Keddy, all N-5



Taken from the files of the June, 1948 Los Alamos Times by Robert Porton

General Bradley Rewards Laboratory Members

Army Chief of Staff, General Omar N. Bradley was in Los Alamos this week and presented awards for distinguished contributions to science to two members of the Los Alamos Scientific Laboratory. LASL scientists receiving the honors were co-leaders of X-Division: Duncan P. MacDougall who was presented with the Medal of Merit, and Max Roy who was given the Certificate of Merit. The formal ceremony was attended by high-ranking officials on General Bradley's staff and of the Navy, plus local Laboratory and AEC officials.

Heavy Vote Tallied In Hill's First Primary

A surprisingly substantial vote of 50% of the community's eligible voters marked Los Alamos' controversial and welcome debut into state politics in Tuesday's primaries. Of the town's 1,500 voters, 755 cast ballots, mildly surprising belittling predictions.

\$2 Million Accelerator For Hill Laboratory

Construction of what is probably the world's largest and most powerful electrostatic accelerator at Los Alamos has been approved, according to Carroll L. Tyler, Manager, Office of Santa Fe Directed Operations. The accelerator, together with associated laboratory buildings, will cost about \$2 million and will take about two years to build. The research tool is designed to yield positive ions with energy up to 12,000,000 electron volts. Plans for the accelerator, which is described as a "pressurized" version of a Van de Graaff electrostatic generator, were started in 1946 by a group under the direction of Joseph L. McKibben.

Allen Heads New Tech Section

Harry S. Allen has been appointed head of the newly-established department of Supply and Property in the Laboratory. He is a native of Philadelphia and obtained his bachelor of arts from Wesleyan University, Middletown, Connecticut. Allen came to Los Alamos in May, 1943 and served as assistant to D. R. Mitchell, Chief of the Procurement Division and assistant to J. R. Oppenheimer, war-time director of the Laboratory.

what's doing

SANTA FE THEATRE COMPANY, performing in the Greer Garson Theatre, Santa Fe. Second season, June 18-Aug. 24. Performances Tuesdays through Saturdays. For information call 982-6511.

June 18-29—"A Streetcar Named Desire."

July 2-13—"The Imaginary Invalid."

OUTDOOR ASSOCIATION: No charge, open to the public. Contact leader for information about specific hikes.

Thursday, June 6, evening hike, Ken Ewing, leader, 8-4488.

Sunday, June 9, Valle Canyon from West Jemez Road, Norris Nereson, leader, 2-3856.

Wednesday, June 12, evening hike, Virginia Winsor, leader, 2-3440.

Tuesday, June 18, evening hike, Terry Gibbs, leader, 8-4909.

Saturday, June 22, Stewart Lake, Virginia Winsor, leader, 2-3440.

Thursday, June 27, evening hike, Dorothy Hoard, leader, 672-3356.

Saturday, June 29, Gold Hill, Ken Ewing, leader, 8-4488.

PUBLIC SWIMMING: Los Alamos High School pool. Adults, 50 cents; students 25 cents.

Monday through Friday, 2 p.m. to 6 p.m. and 7 p.m. to 10 p.m.

Saturday and Sunday, 1 p.m. to 6 p.m.

DON JUAN PLAYHOUSE: Outdoor theater between Los Alamos and Santa Fe, near San Ildefonso Pueblo. Tickets, \$2 at box office, at Decol's in Los Alamos and the Centerline Shop in Santa Fe. Curtain time 9:15 p.m.

Friday and Saturday, June 21 and 22—"A Wind Between the Houses," by Maurice Hill. (Also on Friday, July 12, and Saturday July 13).

Friday and Saturday, June 28 and 29—Two one-act plays: "The Collection," by Harold Pinter, and "No Exit," by Sartre. (Also on Friday, July 19, and Saturday, July 20).

Friday and Saturday, July 5 and 6—"Under Milk Wood," by Dylan Thomas. (Also on Friday, July 26, and Saturday, July 27).

SANTA FE OPERA: Tickets available at Los Alamos Building & Loan, beginning June 19, on Mondays, Wednesdays and Fridays from 10 a.m. to 1 p.m. Curtain time at 9 p.m.

Tuesday, July 2—"Madame Butterfly"

Friday, July 5—"The Magic Flute"

Saturday, July 6—"Madame Butterfly"

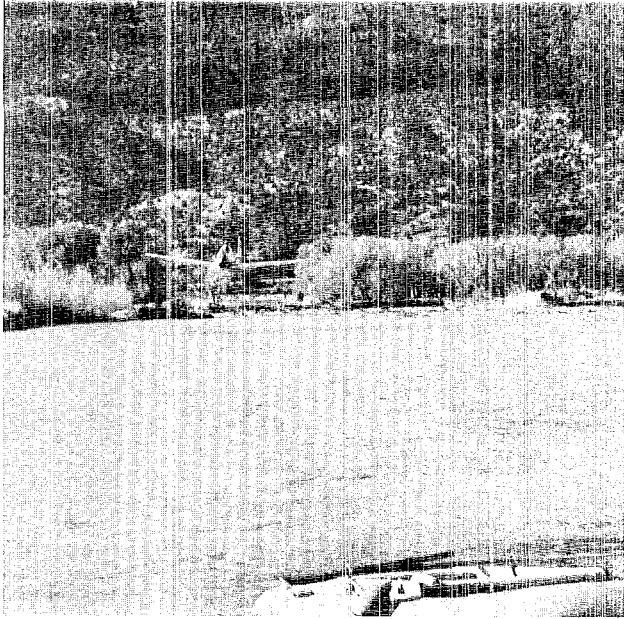
Wednesday, July 10—"The Magic Flute"

Friday, July 12—"Madame Butterfly"

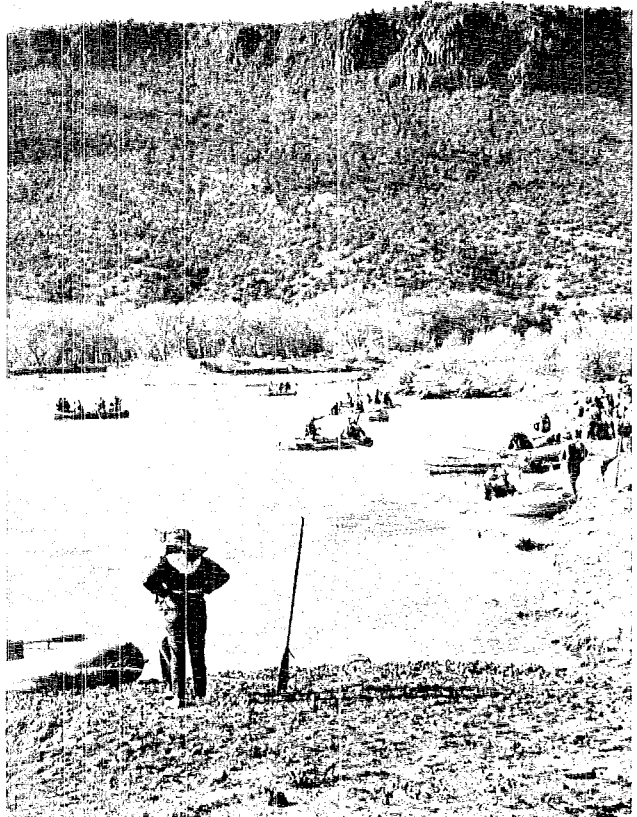
Saturday, July 13—"La Traviata"

NEWCOMERS CLUB: Family Picnic, Horse Mesa Picnic ground, Saturday, June 22, \$2 per family. Food will be furnished; bring own beverages. Games and recreation from 2 p.m.; picnic at 5 p.m. All newcomers and others interested invited. Call Mrs. Harold Faire, 672-3733, for reservations.

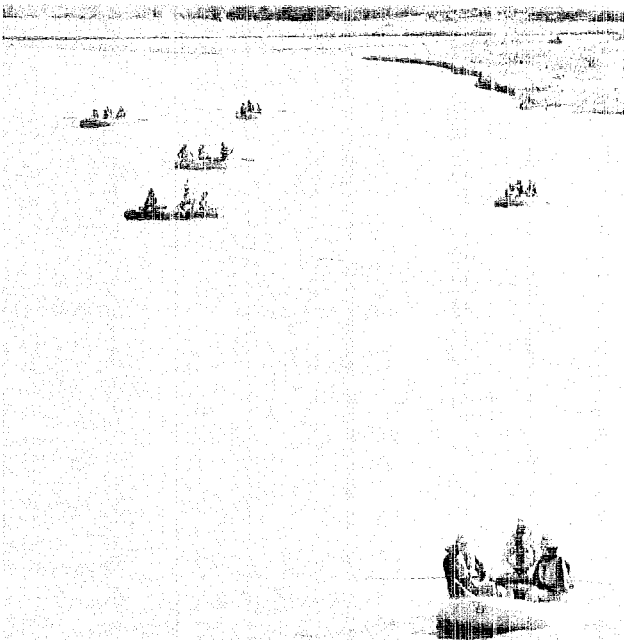
LOS ALAMOS TENNIS CLUB: Informal Singles Tournament, through June 2; call Bruce Erkkila, 2-2306 for further information. Informal Doubles Tournament, June 15 through June 23; call Phil Browne, 8-4320. Both open to residents of Los Alamos, men and women.



A pilot waggled the wings of his airplane in a low-level "hello" to about 70 persons on shore who were preparing rubber rafts and kayaks for a trip down the Rio Grande from Otowi Bridge to Cochiti. About 20 rubber rafts and three kayaks formed "one of the largest flotillas ever launched in the area," said Bob Watt, P-DOR, treasurer of the sponsoring Rio Grande Chapter of the Sierra Club.



The trip down the Rio Grande began about 8:15 a.m., May 18, from a point a mile north of Otowi Bridge. The flotilla was divided into three groups launched a few minutes apart to avoid pile-ups when the going got rough.



The first group nears Otowi Bridge, from where this photo was taken. By the day's end, those participating had traveled about 30 miles.

TRESSA MINSHALL
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A kite-gobblin' tree claims another one.